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a means for controlling the heating means and the reforming means so that the object to be treated is heated after the reforming means reaches a state capable of reforming the gaseous emission.

#### REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-20 and 33 are presently active in this case, Claims 1, 4, 8, 10-16, 18, and 33 having been amended and Claims 21-32 having been canceled by way of the present Amendment.

The Applicants wish to thank Examiner Jennifer Leung and Primary Examiner Hien Tran for the courtesies extended to Applicants' representative, Christopher Ward, during the personal interview conducted on December 17, 2002.

In the outstanding Official Action, the drawings were objected to as failing to comply with 37 CFR 1.84(p)(4). The specification has been amended on page 88 to change reference numeral "115" to reference numeral "116" in order to correspond to Figure 1.

The drawings were also objected to as failing to comply with 37 CFR 1.84(p)(5) for failing to include reference signs mentioned in the specification, as set forth in paragraph 5 on page 3 of the Official Action. Submitted concurrently herewith is a Letter Requesting Approval of Drawing Changes which includes amendments in red ink to address the objections. Regarding the objection to Figure 1, Figure 1 has been amended to include reference numerals 106a, 106b, and 106c, and the Applicants note that reference numerals 111b, 111c and 115b are depicted in Figure 2. Regarding the objection to Figure 2, the reference numeral "210" has been added to refer to the monitor. Regarding the objection to

Figure 3, reference numerals 300 and 350 have been added to correspond to the written description. Regarding the objection to Figure 12, the description on page 11, lines 6-15, has been deleted in its entirety. Accordingly, the Applicants request the withdrawal of the objection to the drawings.

The drawings were also objected to as failing to comply with 37 CFR 1.84(p)(5) for including reference signs not mentioned in the specification, as set forth in paragraph 6 on page 3 of the Official Action. Regarding the objection to Figure 3, the specification has been amended on page 97 to include references to reference numerals 306, 307, 308, 316, and 318. Regarding the objection to Figure 5, the specification has been amended on page 101 to include a reference to reference numerals 508c, 510c, and 512c. Regarding the objection to Figure 6, the specification has been amended on page 102 to include a reference to reference numerals 602c and 605c. Furthermore, the Applicants note that the written description mentions reference numerals 603, 604, 606, and 607 on page 103. Regarding the objection to Figures 10, 11, and 12, the Applicants note that all of the reference numerals mentioned are described in the written description, for example, on pages 164-165. Accordingly, the Applicants request the withdrawal of the objection to the drawings.

The disclosure was objected to for minor informalities as indicated in paragraph 8 on page 4 of the Official Action. Pages 3, 85, 89, and 95 of the specification have been amended as suggested in the Official Action. Accordingly, the Applicants request the withdrawal of the objection to the disclosure.

Claims 1-20 and 33 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding the rejection of Claim 1, the Applicants respectfully submit that the terms "hermetic" and "tube" are terms that are clear and definite.

For example, the term "hermetic" is defined in Websters II, New College Dictionary as "totally sealed, esp. against the escape or entry of air." The terms "hermetic" and "tube" have well known meanings in the art. The term "hermetic" is used throughout the specification (see, for example, hermetic chamber 102), and the tube is described in the specification, for example, on page 108, line 26, through page 109, line 4, with reference to retort 115c. Claim 1 has been amended to define the second opening as being on a side of the tube facing the first hermetic chamber, thereby clarifying the language of the claim. Claim 4 has been amended to clarify the position of the hermetic door, as is depicted in Figure 11. Regarding the rejection of Claim 5, the Applicants submit that the means is defined in relation to the first hermetic chamber, and that further structural details are unnecessary to clearly define the claim limitation, especially in light of the fact that this is a means plus function limitation rather than a structural recitation. Figure 7 depicts of an embodiment of the subject matter of Claim 5. Claim 8 has been amended to clarify the recited structure. Regarding the rejection of Claim 9, the Applicants note that the specification describes an embodiment of a first hermetic chamber (102 or 103) and a second hermetic chamber (111 or 115), and that the structural relationship defined in the claim is definite especially upon review of Figures 2 and 10-12 of the application. (See also page 87, lines 11-12.) Claim 10 has been amended to clarify the location of the third opening. Claims 11 and 12 have been amended to clarify the exhaust system recited therein, and to provide antecedent basis for "the third opening" in Claim 12. Regarding the phrase "hermetically connected," as noted above the Applicants submit that the term "hermetic" is clear and known in the art and the hermetic connection is described in the specification, for example, on page 87, lines 11-12, and depicted in Figure 11. Regarding the rejection of the means limitations recited in Claims 13-15, 19, 20, and 33, the Applicants submit that each of the means have been amended to

be defined in relation to a structural element of the apparatus, and that further structural details are unnecessary to clearly define the claim limitation, especially in light of the fact that these are means plus function limitations rather than structural recitations. Claims 15 and 16 have been amended to clarify antecedent basis issues. Regarding the rejection of the term "wet," the Applicants respectfully submit that the phrase "wet filter" is a term of art and is clear to one of ordinary skill in the art. Claim 18 has been amended to clarify the language recited therein. Claim 33 has been amended to clarify the language used therein, and to provide the necessary relationships between the limitations recited therein. Accordingly, the Applicants respectfully request the withdrawal of the indefiniteness rejections.

Claims 1-3 and 5 were rejected under 35 U.S.C. 102(b) as being anticipated by Kemper (U.S. Patent No. 3,770,501). Claims 1-3 and 5 were rejected under 35 U.S.C. 102(b) as being anticipated by Bell et al. (U.S. Patent No. 4,431,612). Claim 33 was rejected under 35 U.S.C. 102(b) as being anticipated by Tejima et al. (JP 9-248549). Claims 1-3, 5-9, 11, and 13-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tejima et al. in view of Legille (U.S. Patent No. 3,907,261). Claims 4, 10, and 12 was rejected under 35 U.S.C. 103(a) as being unpatentable over Tejima et al. in view of Legille and further in view of Tomlinson et al. (U.S. Patent No. 2,657,031). For the reasons discussed below, the Applicants respectfully request the withdrawal of the art rejections.

Regarding the anticipation rejection of Claim 1 based upon the Kemper reference, the Official Action cites the Kemper reference for the teaching of a chamber at 10, a tube at 13, and a hermetic door at 15. However, the feature 15 is not capable of opening and closing the opening of the feature 10. Accordingly, the Applicants submit that the Kemper reference does not anticipate Claim 1, which expressly recites a treatment apparatus, comprising a first hermetic chamber having a first opening, and a hermetic door capable of opening and closing

the first opening. Therefore, the Applicants respectfully request the withdrawal of the anticipation rejection of Claim 1 based on the Kemper reference.

Regarding the anticipation rejection of Claim 1 based upon the Bell et al. reference, the Official Action cites the Bell et al. reference for the teaching of a chamber at 18 having an opening 78, a tube at 68, and a hermetic door at 70. However, the feature 70 is not capable of opening and closing the opening 78 of the feature 18 (see, for example, conduit 80). Accordingly, the Applicants submit that the Bell et al. reference does not anticipate Claim 1, which expressly recites a treatment apparatus, comprising a first hermetic chamber having a first opening, and a hermetic door capable of opening and closing the first opening. Additionally, the feature 70 is not shielded from feature 18 by feature 68 when feature 68 is inserted into opening 78 due to the unnumbered passageway extending through the upper end of feature 68 in Figure 1. Accordingly, the Applicants submit that the Bell et al. reference does not anticipate Claim 1, which expressly recites that the door is shielded from the first hermetic chamber by the tube when the tube is inserted into the first opening. Therefore, the Applicants respectfully request the withdrawal of the anticipation rejection of Claim 1 based on the Bell et al. reference.

Regarding the anticipation rejection of Claim 33 based upon the Tejima et al. reference, the Official Action cites the Tejima et al. reference for the teaching of a means for controlling the heating means and reforming means 611. Claim 33 has been amended to recite a treatment apparatus, comprising a hermetic zone within a hermetic chamber, an exhaust system connected to the hermetic chamber for exhausting the hermetic zone, and a reforming means, placed between the hermetic zone and the exhaust system, for reforming a gaseous emission produced by heating the object to be treated. The treatment apparatus further comprises a means for heating the interior of the hermetic zone, and a means for

controlling the heating means and the reforming means so that the object to be treated is heated after the reforming means reaches a state capable of reforming the gaseous emission. The Applicants submit that the Tejima reference does not disclose or suggest a means for controlling the heating means and the reforming means so that the object to be treated is heated after the reforming means reaches a state capable of reforming the gaseous emission, as recited in amended Claim 33. Accordingly, the Applicants submit that the Tejima et al. reference does not anticipate Claim 33. Therefore, the Applicants respectfully request the withdrawal of the anticipation rejection of Claim 33 based on the Tejima et al. reference.

Regarding the obviousness rejection of Claim 1 based upon the Tejima et al. and Legille references, the Official Action cites the Legille reference for the teaching of "a tube 17 capable of inserting into an opening 6 of a furnace. However, the Legille reference teaches that the tubulure 17 includes stop members 24 that limit the downward motion of the tubulure, and prevent the tubulure 17 from being inserted into the opening 6 of the furnace. Additionally, based on the figure, it appears as though the lower flange 3 is too small to allow the tubulure 17 from extending therethrough and into opening 6 of the furnace. Accordingly, the Applicants submit that the Legille reference does not teach a tube capable of inserting into a first opening of a first hermetic chamber, as recited in Claim 1. Furthermore, the Official Action admits that the Tejima et al. reference is silent as to the teaching of such a tube. Therefore, the Applicants respectfully request the withdrawal of the obviousness rejection of Claim 1 based on the Tejima et al. and Legille references.

Accordingly, the Applicants respectfully request the withdrawal of the art rejections of Claims 1 and 33.

Claims 1, 2, 5, 8, 9, 11, 13-15, 19, 20, and 33 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1,

3-6, 8, 9, and 11-21 of U.S. Patent No. 6,332,909. Claims 3, 6, and 7 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1, 3-6, 8, 9, and 11-21 of U.S. Patent No. 6,332,909 in view of Legille. Claims 4, 10, and 12 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1, 3-6, 8, 9, and 11-21 of U.S. Patent No. 6,332,909 in view of Legille and Tomlinson et al. Claims 16-18 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1, 3-6, 8, 9, and 11-21 of U.S. Patent No. 6,332,909 in view of Tejima et al.

Regarding the double patenting rejection of Claim 1 based upon Claims 1, 3-6, 8, 9, and 11-21 of U.S. Patent No. 6,332,909, the Applicants respectfully submit that the cited claims do not recite or suggest a tube capable of inserting into a first opening in a first hermetic chamber, where the tube has a second opening on a side facing the first hermetic chamber, or a hermetic door capable of opening and closing the first opening, where the door is shielded from the first hermetic chamber by the tube when the tube is inserted into the first opening, as recited in Claim 1. Accordingly, the Applicants respectfully request the withdrawal of the double patenting rejection of Claim 1 based upon Claims 1, 3-6, 8, 9, and 11-21 of U.S. Patent No. 6,332,909.

Regarding the double patenting rejection of Claim 33 based upon Claims 1, 3-6, 8, 9, and 11-21 of U.S. Patent No. 6,332,909, the Applicants respectfully submit that the cited claims do not recite or suggest a means for controlling the heating means and the reforming means so that the object to be treated is heated after the reforming means reaches a state capable of reforming the gaseous emission, as recited in amended Claim 33. Accordingly, the Applicants respectfully request the withdrawal of the double patenting rejection of Claim 33 based upon Claims 1, 3-6, 8, 9, and 11-21 of U.S. Patent No. 6,332,909.

Claims 2-20 are considered allowable for the reasons advanced for Claim 1 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claim 1.

Consequently, in view of the above discussion, it is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully submitted,

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IN THE SPECIFICATION

Page 3, line 25 through page 4, line 13, please amend the paragraph as follows:

As the first hermetic chamber, a heating furnace[, a reduced pressure heating furnace], and a reduced pressure heating furnace, for example, can be named. Such a hermetic chamber may have single chamber structure, and in addition, a plurality of such hermetic chambers may be arranged with doors between them. A purge chamber for purging a treatment atmosphere for an object to be treated, a preheating chamber for preheating the object to be treated, a cooling chamber for cooling the object to be treated, and the like may be further provided at a stage before or after these hermetic chambers. When the pressure in a first hermetic chamber is reduced, it is recommended that an exhaust system for exhausting the contents of the first hermetic chamber through a first opening be provided. As an exhaust system, various kinds of vacuum pumps (a rotary pump, an oil diffusion pump, a mechanical booster pump, a turbo-molecular pump, a getter-ion pump, a liquid sealing pump, and the like), a blower, a fan, and the like can be given. By such an exhaust system, the pressure in the first hermetic chamber can be regulated.

Page 85, lines 7-9, please amend the paragraph as follows:

An exhaust system 110 is connected to the first hermetic chamber 102. The structure of this exhaust system is similar to that of the exhaust system [110] 106 of the purge chamber 101.

Page 87, lines 3-18, please amend the paragraph as follows:

An exhaust gas treatment system 111 for treating a gaseous emission containing gas produced by decomposition of the component resins of the object to be treated 150 is placed between the first hermetic chamber 102 and the exhaust system 110. The first hermetic chamber 102 and the exhaust gas treatment system 111 are partitioned off by an openable and closeable hermetic door 111b as depicted in Figure 2. When this hermetic door 111b is opened, a retort 111c is inserted from the exhaust gas treatment system 111 side. On this occasion, the hermetic door 111b is shielded from the first hermetic chamber 102, and the first hermetic chamber 102 and the exhaust treatment system 111 hermetically communicate with each other by the retort 111c. The adoption of this structure makes it possible to prevent the gaseous emission from adhering to the hermetic door 111b in the treatment apparatus of the present invention. Moreover, a seal portion of the hermetic door 111b is shielded from heat from the first hermetic chamber 102, whereby the seal portion of the hermetic door is protected, leading to improvement in hermetic sealing capability.

Page 88, lines 5-8, please amend the paragraph as follows:

A multi-exhaust gas chamber not illustrated may be provided at stages subsequent to the exhaust systems 106, 110, 114, and [115] 116 connecting to the respective chambers in

order not to leak noxious gases emitted from the object to be treated 150 to the outside of the apparatus.

Page 89, lines 4-7, please amend the paragraph as follows:

This second hermetic chamber 103 includes the same electric heater [109] 113 as the first hermetic chamber as a heating means. The heating member is not limited to the electric heater 109, and can be selected or provided in combination as required.

Page 89, lines 16-18, please amend the paragraph as follows:

An exhaust system 114 is connected to the second hermetic chamber 103. The structure of this exhaust system is similar to that of the exhaust system [114] 106 of the purge chamber 101.

Page 91, line 16 through page 92, line 7, please amend the paragraph as follows:

A recovery chamber 115 for recovering a metal in the state of a gas vaporized from the object to be treated 150 is placed between the second hermetic chamber 103 and the exhaust system 114. This recovery chamber condenses the metal vaporized in this chamber by cooling them to a temperature not more than a melting point and recovers it. The second hermetic chamber 103 and the recovery chamber 115 are partitioned off by an openable and closeable hermetic door 115b as depicted in Figure 2. When the hermetic door 115b is opened 115b, a retort (or a tube) 115c is inserted from the recovery chamber 115 side. On this occasion, the hermetic door 115b is shielded from the second hermetic chamber 103 and the recovery chamber 115, and the second hermetic chamber 103 and the recovery chamber 115 hermetically communicate with each other by the retort 115c. The adoption of the

aforesaid structure makes it possible to prevent vaporized substances from the object to be treated from condensing and adhering to the hermetic door 115b in the treatment apparatus of the present invention. Moreover, a seal portion of the hermetic door 115b is shielded from heat from the second hermetic chamber 103, whereby the seal portion of the hermetic door 115b is protected, leading to improvement in hermetic sealing capability.

Page 95, line 13 through page 96, line 4, please amend the paragraph as follows:

FIG. 2 is a diagram schematically showing the treatment apparatus of the present invention illustrated in FIG. 1. Signals from a pressure sensor 202a in the purge chamber 101, a temperature sensor [201a] 201b, a pressure sensor 202b, and an oxygen concentration sensor 203 in the first hermetic chamber 102, a temperature sensor 201c and a pressure sensor 202c in the second hermetic chamber 103, and a pressure sensor 202d in the cooling chamber 104, all of which are not illustrated in FIG. 1, are transmitted to a control panel 200 composing a control means. The control means may be structured by incorporating a program into an electronic computer. It is suitable that the control means controls the heating means, the pressure regulating means, and the oxygen concentration regulating means according to the state of each of the chambers in the apparatus. Moreover, the opening and closing of the partitions 105 and the transfer of the object to be treated 150 by the pusher 130 and the drawer 131 may be performed by this control means. The numeral 210 denotes a monitor for showing the state of the temperature, pressure, oxygen concentration, and the like in each chamber, the opening and closing state of the partitions 105, and the like to the operator. The numeral 211 denotes a multi-exhaust gas treatment device.

Page 97, lines 14-17, please amend the paragraph as follows:

The purge chamber 301, the cooling chamber 303, partitions 305, exhaust system 306, trap 307, carrier gas introduction valve 308, exhaust system 316, trap 318, the carrier gas introduction system, a pusher 330, and a drawer 331 are similar to those in the treatment apparatus 100 illustrated in FIG. 1. A control means also can be provided in the same manner.

Page 101, lines 11-22, please amend the paragraph as follows:

The purge chamber 501 is connected to a trap 506 and an exhaust system 507. The first hermetic chamber 502 is connected to an exhaust gas treatment system 508 and an exhaust system 509 via a hermetic door 508b. The second hermetic chamber 503 is connected to a recovery chamber 510 and an exhaust system 511 via a hermetic door 510b. The third hermetic chamber 504 is connected to a recovery chamber 512 and an exhaust system 513 via a hermetic door 512b. The cooling chamber 505 is connected to a trap 514 and an exhaust system 515. The first hermetic chamber 502, the second hermetic chamber 503, and the third hermetic chamber 504 include temperature regulating means not illustrated respectively. The numeral 516 denotes a carrier gas introduction system, and the numeral 517 denotes a carrier gas reservoir. The exhaust gas treatment system 508 includes a retort 508c, the recover chamber 510 includes a retort 510c, and the recover chamber 512 includes a retort 512c.

Page 102, lines 8-16, please amend the paragraph as follows:

This treatment apparatus 600 is an apparatus capable of treating an object to be treated having resins and metals as its components. In this treatment apparatus 600, a

plurality of recovery systems are connected to one hermetic container 601, and treatment is performed by switching the recovery systems according to the temperature, pressure, and oxygen concentration in the hermetic container 601. Also in this example, the hermetic container 601 and exhaust gas treatment systems 602 are partitioned off by hermetic doors 602b in the same manner as above. Moreover, the hermetic container 601 and the recovery chamber 605 are partitioned by hermetic doors 605b. The exhaust gas treatment systems 602 each include a retort 602c, and the recovery chambers 605 each include a retort 605c.

Page 111, lines 6-15, please delete this paragraph in its entirety.

[FIG. 12 is a diagram roughly showing an example of the structure of an exhaust gas treatment device for treating exhaust gas emitted from the object to be treated but not recovered in the exhaust gas treatment system, the recovery chamber, and the like. A multi-exhaust gas treatment filter 1201, a filter 1202 for making exhaust gas smokeless, and a filter 1203 for making exhaust gas odorless are connected at a stage subsequent to the exhaust gas treatment system or the recovery system such as the recovery chamber. In addition to the above, for example, an alkali trap for recovering halogen gas, a halogenated hydrocarbon decomposition device using a catalyst, and the like may be provided.]

#### IN THE CLAIMS

1. (Once Amended) A treatment apparatus, comprising:
  - a first hermetic chamber having a first opening;
  - a tube capable of inserting into the first opening, and the tube having a second opening [in an inserting direction] on a side facing the first hermetic chamber; and

a hermetic door capable of opening and closing the first opening, and the door being shielded from the first hermetic chamber by the tube when the tube is inserted into the first opening.

4. (Once Amended) The treatment apparatus as set forth in claim 1, wherein the tube has a third opening [on a side] in an area opposite to the first hermetic chamber with the hermetic door [therebetween] being positioned between the second opening and the third opening when the tube is inserted into the first opening.

8. (Once Amended) The treatment apparatus as set forth in claim 1, wherein a plurality of the first hermetic chambers are [lined up,] linearly arranged, said plurality of the first hermetic chambers being partitioned off by openable and closeable partitions.

10. (Once Amended) The treatment apparatus as set forth in claim 9, wherein the tube has a third opening on [the second hermetic chamber side] a side opposite to the first hermetic chamber when the tube is inserted into the first opening.

11. (Once Amended) The treatment apparatus as set forth in claim [9] 10, further comprising:

an exhaust system connected to the first hermetic chamber via the second hermetic chamber.

12. (Once Amended) The treatment apparatus as set forth in claim 11, [further comprising:

an exhaust system connected to the first hermetic chamber via the second hermetic chamber,] wherein the third opening of the tube and the exhaust system are hermetically connected when the tube is inserted into the first opening of the first hermetic chamber.

13. (Once Amended) The treatment apparatus as set forth in claim 9, further comprising:

a means for performing pressure regulation [so that a pressure] in a space between the tube and the second hermetic chamber so that a pressure in the space is higher than a pressure in the first hermetic chamber when the tube is inserted into the first opening of the first hermetic chamber.

14. (Once Amended) The treatment apparatus as set forth in claim 9, further comprising:

a means for performing pressure regulation [so that a pressure] in the first hermetic chamber so that a pressure in the first hermetic chamber is lower than a pressure in a space between the tube and the second hermetic chamber and higher than a pressure in the tube when the tube is inserted into the first opening of the first hermetic chamber.

15. (Once Amended) The treatment apparatus as set forth in claim 13, wherein the means for performing [regulating means] regulation has a means for supplying a carrier gas to a space between the tube and the second hermetic chamber.

16. (Once Amended) The treatment apparatus as set forth in claim [9] 11, further comprising:

a filter means placed between the second hermetic chamber and the exhaust [means] system.

18. (Once Amended) The treatment apparatus as set forth in claim 9, wherein the tube is [exchangeably provided] removable, and the second hermetic chamber has hermetically openable and closeable door for [exchanging] replacing the tube with a second tube.

21-32. (Cancel)



33. (Once Amended) A treatment apparatus, comprising:

- a hermetic zone within a hermetic chamber for housing an object to be treated;
- an exhaust system connected to the hermetic chamber for exhausting the hermetic zone;
- a means for heating the interior of the hermetic zone;
- a reforming means, placed between the hermetic zone and the exhaust system, for reforming a gaseous emission produced by heating the object to be treated; and
- a means for controlling the heating means and the reforming means so that the object to be treated is heated after the reforming means [gets ready to reform] reaches a state capable of reforming the gaseous emission.